

REMARKS

In the Office Action, the Examiner rejected claims 1-19 and 24-25 under 35 U.S.C. §103(a) as being unpatentable over the United States Patent 6,587,990 issued to Andreev, et al. (hereafter “Andreev”) in view of Mano, et al. (hereafter “Mano”). The Examiner also rejected claims 20-23 under 35 U.S.C. §103(a) as being unpatentable over Andreev in view of Mano, further in view of the United States Patent 6,134,705 issued to Pedersen, et al. (hereafter “Pedersen”).

In this response, Applicants have not amended, added, or canceled any claims. Accordingly, claims 1-25 will be pending after entry of this response.

I. Rejection of Claim 1 under §103(a)

In the Office Action, the Examiner rejected claim 1 under §103(a) as being unpatentable by Andreev in view of Mano. Claim 1 recites a data storage structure that is stored on a computer-readable medium. The data storage structure stores several combinational-logic sub-networks. Each sub-network performs a set of output functions and includes a set of circuit elements. At least some of the sub-networks include a first circuit that has a first output outside the sub-network and a second circuit that has a second output outside the sub-network. The first circuit receives a direct or indirect input from the second circuit. Each sub-network is stored based on a set of indices derived from the set of output functions performed by the sub-network. The set of indices is used to retrieve the sub-network from the data storage structure.

For at least the following two reasons, Applicants respectfully submit that Andreev and Mano do not disclose, teach, or even suggest the method of claim 1, either alone or through their piecemeal hindsight combination. *First*, Applicants respectfully submit that Andreev, Mano, or their piecemeal hindsight combination does not disclose, teach, or even suggest storing a sub-

network based on its set of output functions, where the sub-network includes a first circuit having a first output outside the sub-network that receives a direct or indirect input from a second circuit having a second output outside the sub-network. In the Office Action, the Examiner correctly indicated that Andreev does not teach the specifics regarding the structure of the sub-network. However, the Examiner cited Mano to suggest a sub-network with the circuit structure described in claim 1. Furthermore, the Examiner stated that it would have been obvious to modify Andreev by the teaching of Mano, because the sub-network is a grouping of one or more circuit elements connected to perform a function. *See*, Office Action, page 3.

Applicants respectfully submit that the limitations of claim 1 do not simply recite the particular circuit structure depicted in Mano, but rather storage of the particular structure based on the first and second outputs of the particular structure. Moreover, Andreev does not disclose, teach, or even suggest storage of a sub-network based on first and second outputs of a single sub-network. Accordingly, even the combination of the references does not disclose the limitations of claim 1. The combination of references would only specify storing a sub-network based on a single output function of the sub-network as specified in Andreev, where the sub-network has the particular circuit structure of Mano. *See*, Andreev, column 6, 17-22. However, claim 1 specifies storing a sub-network based on first and second output functions of the particular circuit structure of the sub-network.

As such, the Examiner's combination of Andreev and Mano requires more than the predictable use of the prior art elements found within Andreev and Mano. *KSR Int'l Co. v. Teleflex Inc.*, 127 S. Ct. 1727, 1740 (U.S. 2007). Therefore, Applicants respectfully submit that it would not be obvious to combine the prior art elements of Andreev and Mano to perform the storing of a sub-network based on first and second output functions of a particular sub-network structure, where the first output feeds an input of the second output.

Second, Applicants respectfully submit that Andreev does not disclose, teach, or even suggest storing a sub-network based on a set of indices derived from the set of output functions performed by the sub-network, where the sub-network has first and second outputs that generate the set of output functions. In the Office Action, the Examiner cites column 11, lines 40-64 and column 13, lines 60-65 of Andreev to suggest such a limitation. Moreover, in the “Response to Arguments” found on page 12 of the current Office Action, the Examiner cites column 11, lines 40-64 of Andreev stating that “within creating a hash table and using it for storing the sub-network, wherein L is a parameter/index”.

As recited in claim 1, the set of indices used to store the sub-network are derived from the set of output functions performed by the sub-network, where the sub-network has a particular structure including first and second outputs that generate the set of output functions. The Examiner noted on page 3 of the Office Action that Andreev does not disclose the particular structure of the sub-network. Therefore, it does not follow that the cited parameter “L” of Andreev discloses, teaches, or even suggests a set of indices that are derived from the particular structure of the sub-network of claim 1.

Furthermore, Applicants respectfully disagree with the Examiner’s characterization that “L” is the parameter/index for storing a sub-network within the hash table. Applicants respectfully submit that the hash table cannot be indexed by “L”, because Andreev explicitly states that the hash table is a “representation of the set L_{j+1} ”. *See*, Andreev, column 11, line 32. Therefore, it does not follow that “L” is an index into itself. Column 11, lines 33-34 of Andreev simply states that “[i]f the above condition is true then we write down the set u to the L_j ”. As is clearly evident, such a storage operation omits any reference to storing a sub-network based on a set of indices derived from the output functions of the sub-network. Accordingly, Applicants respectfully submit that nowhere within the cited lines or elsewhere within the Andreev reference

is the storing of a sub-network based on a set of indices derived from the set of output functions performed by the sub-network disclosed, taught, or even suggested.

In view of the foregoing remarks, Applicants respectfully submit that the cited references do not render claim 1 invalid. Accordingly, Applicants respectfully request reconsideration and withdrawal of the rejection of claim 1.

II. Rejection of Claims 2-11 and 25 under §103(a)

In the Office Action, the Examiner rejected claims 2-11 and 25 under §103(a) as being unpatentable by Andreev in view of Mano. Claims 3-11 and 25 are directly or indirectly dependent on claim 2. Claim 2 recites a data storage structure that is stored on a computer-readable medium. The data storage structure stores several combinational-logic sub-networks. Each sub-network performs a set of output functions and includes a set of circuit elements. At least some of the sub-networks include a first circuit that has a first output outside the sub-network and a second circuit that has a second output outside the sub-network. The first circuit receives a direct or indirect input from the second circuit. The data storage structure stores each sub-network based on a parameter derived from the set of output functions of the sub-network. The parameter is used to retrieve the sub-network from the data storage structure.

In the Office Action, the Examiner rejected claim 2 along the same rationale as claim 1. Therefore, as argued above with regards to claim 1, Applicants respectfully submit that Andreev, Mano, or their piecemeal hindsight combination does not disclose, teach, or even suggest storing a sub-network based on its set of output functions, where the sub-network includes a first circuit having a first output outside the sub-network that receives a direct or indirect input from a second circuit having a second output outside the sub-network. Similarly, Applicants respectfully submit that Andreev does not disclose, teach, or even suggest storing a sub-network based on a set of indices derived from the set of output functions performed by the sub-network, where the sub-

network has first and second outputs that generate the set of output functions, as argued above with regards to claim 1.

In view of the foregoing remarks, Applicants respectfully submit that the cited references do not render claim 2 invalid. Given that claims 3-11 and 25 are dependent on claim 2, Applicants respectfully submit that these claims be allowable over the cited reference for at least the same reasons that were provided above for claim 2. Accordingly, Applicants respectfully request reconsideration and withdrawal of the rejection of claims 2-11 and 25.

III. Rejection of Claim 10 under §103(a)

In the Office Action, the Examiner rejected claim 10 under §103(a) as being unpatentable by Andreev in view of Mano. Claim 10 is dependent upon claims 1, 3, and 9 and recites the limitations of claims 1, 3, and 9 with the additional limitations specifying that the data storage structure stores each sub-network in terms of (i) a graph that includes a node for each circuit element of the sub-network and (ii) a set of local functions that includes a local function for each node of the graph.

Applicants respectfully submit that Andreev does not disclose, teach, or even suggest storing a graph that includes a node for each circuit element of the sub-network. In the Office Action, the Examiner cited figure 18 and column 10, lines 14-15 of Andreev to suggest such a limitation. Applicants respectfully submit that the nodes within the cited figures do not disclose, teach, or even suggest circuit elements. Instead, the cited figures represent a Binary Decision Diagram where the nodes “correspond to Boolean functions”. *See*, Andreev, column 5, lines 5-17 (emphasis added). Therefore, Applicants respectfully submit that Andreev does not disclose, teach, or even suggest a graph that includes a node for each circuit element of the sub-network.

Accordingly, Applicants respectfully request reconsideration and withdrawal of the rejection of claim 10.

IV. Rejection of Claim 11 under §103(a)

In the Office Action, the Examiner rejected claim 11 under §103(a) as being unpatentable by Andreev in view of Mano. Claim 11 is dependent upon claims 1, 3, 9, and 10 and recites the limitations of claims 1, 3, 9, and 10 with the additional limitations specifying that each sub-network's identifier includes a graph index and a set of function indices. The graph index identifies the storage location of the graph for the sub-network and a function index in the set of function indices identifies the storage location of a local function of the sub-network.

Applicants respectfully submit that Andreev does not disclose, teach, or even suggest each sub-network's identifier including a graph index for identifying the storage location of the graph and a set of function indices for identifying the storage location of a local function of the sub-network. In the Office Action, the Examiner cited figure 19 to suggest the limitations of claim 11. However, figure 19 of Andreev is a flowchart that does not disclose, teach, or even suggest a graph index for identifying the storage location of the graph or function indices for identifying the storage location of a local function of the sub-network. In fact, the only storage step depicted within figure 19 simply states "Store F-set u in L_j". Accordingly, Applicants respectfully submit that the Examiner has failed to establish a *prima facie* case of anticipation, because Andreev does not disclose every limitation of claim 11. Therefore, Applicants respectfully request reconsideration and withdrawal of the rejection of claim 11.

V. Rejection of Claims 12-24 under §103(a)

In the Office Action, the Examiner rejected claims 12-24 under §103(a) as being unpatentable by Andreev in view of Mano. Claims 13-24 are directly or indirectly dependent on claim 12. Claim 12 recites a sub-network record management system that is stored on a

computer-readable medium. The sub-network record management system includes a data storage structure that is stored on a computer-readable medium. The data storage structure stores a plurality of combinational-logic sub-networks. Each sub-network performs a set of output functions and includes a set of circuit elements. At least some of the sub-networks include a first circuit that has a first output outside the sub-network and a second circuit that has a second output outside the sub-network. The first circuit receives a direct or indirect input from the second circuit. The data storage structure stores each sub-network based on a parameter derived from the set of output functions of the sub-network. The parameter is used to retrieve the sub-network from the data storage structure. The sub-network record management system also includes a data access manager that identifies and retrieves sub-networks from the data storage structure.

For at least the following three reasons, Applicants respectfully submit that Andreev and Mano do not disclose, teach, or even suggest the method of claim 12, either alone or through their piecemeal hindsight combination. *First*, Applicants respectfully submit that the Examiner has failed to establish a *prima facie* case of anticipation, because the references do not disclose every limitation of claim 12. For instance, neither Andreev nor Mano disclose, teach, or even suggest a data access manager that identifies and retrieves sub-networks from the data storage structure. In the Office Action, the Examiner cites column 4, lines 17-30 of Andreev to suggest such a limitation. However, the cited lines disclose an example of a combinational circuit and the basic logic gates used to create the combinational circuit. Applicants respectfully submit that nowhere within the cited lines or elsewhere within the Andreev and/or Mano references is a data access manager that identifies and retrieves sub-networks from the data storage structure disclosed, taught, or even suggested. Accordingly, the Examiner has failed to establish a *prima facie* case of anticipation.

Second, as argued above with regards to claim 1, Applicants respectfully submit that Andreev, Mano, or their piecemeal hindsight combination does not disclose, teach, or even suggest storing a sub-network based on its set of output functions, where the sub-network includes a first circuit having a first output outside the sub-network that receives a direct or indirect input from a second circuit having a second output outside the sub-network.

Third, Applicants respectfully submit that Andreev does not disclose, teach, or even suggest storing a sub-network based on a set of indices derived from the set of output functions performed by the sub-network, where the sub-network has first and second outputs that generate the set of output functions, as argued above with regards to claim 1.

In view of the foregoing remarks, Applicants respectfully submit that the cited references do not render claim 12 invalid. Given that claims 13-24 are dependent on claim 12, Applicants respectfully submit that these claims be allowable over the cited reference for at least the same reasons that were provided above for claim 12. Accordingly, Applicants respectfully request reconsideration and withdrawal of the rejection of claims 12-24.

VI. Rejection of Claim 13 under §103(a)

In the Office Action, the Examiner rejected claim 13 under §103(a) as being unpatentable by Andreev in view of Mano. Claim 13 is dependent upon claim 12 and recites the limitations of claim 12 with the additional limitations specifying that when the data access manager receives a parameter, the manager searches the data storage structure for sub-networks that are based on the received parameter, and if the manager finds a sub-network that is stored based on the received parameter, the manager retrieves the sub-network.

Applicants respectfully submit that Andreev does not disclose, teach, or even suggest a data access manager searching the data storage structure for sub-networks that are based on the

received parameter. In the Office Action, the Examiner cited column 10, lines 20-26 and column 11, lines 54-56 to suggest such a limitation. However, Applicants respectfully submit that the cited lines present a table that maps a vertex of a graph to a particular Boolean function. The cited lines wholly omit any reference to a data access manager and are similarly devoid of any references to having the data access manager perform a search based on a received parameter. Therefore, Applicants respectfully submit that Andreev does not disclose, teach, or even suggest a data access manager searching the data storage structure for sub-networks that are based on the received parameter. Accordingly, Applicants request reconsideration and withdrawal of the rejection to claim 13.

CONCLUSION

In view of the foregoing, it is submitted that all pending claims, namely claims 1-25, are in condition for allowance. Reconsideration of the rejections and objections is requested. Allowance is earnestly solicited at the earliest possible date.

Respectfully submitted,

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